bees were in close proximity, often in direct contact. Each individual grasped the stem with mandibles and all legs, folded the wings back over the body and oriented the head upwards (Fig. 1). There were no other megachilid bees located in the vicinity of this tree.

Before sunrise the next morning, I collected the cold and immobile bees by placing a plastic bag over the branch and shaking. Upon examination, I discovered that all 87 bees were males of the same species. The bees were identified as *Chalicodoma chilopsis* (Cockerell) by Terry Griswold of the USDA-ARS Bee Lab in Logan, Utah. Even though the entire aggregation was collected on 22 Apr, more individuals of the same species utilized the same branch on successive nights. The site was used continuously for a total of 20 nights by 10 to 40 bees. Occasionally there were smaller aggregations of up to three individuals on a branch in close proximity to the main aggregation.

Thus, megachilid's also exhibit the monospecific male sleeping aggregations typical of anthophorids. Most likely such aggregations are not rare, but have not been recorded due to the difficulty in finding a cluster, as well as correctly identifying megachilid bees.

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Scientific Note

FAN PALM AS AN URBAN NESTING SUBSTRATE FOR *XYLOCOPA CALIFORNICA ARIZONENSIS* CRESSON (HYMENOPTERA: ANTHOPHORIDAE)

The city of Tucson, Arizona has been expanding into the desert for years. As a result, much of the native vegetation has been removed or severely reduced. *Xylocopa californica arizonensis* Cresson typically nests in the dried fruiting stalks (infructescenses) of *Yucca, Agave,* and *Dasylirion,* preferring stalks that are only 1–2 years old. These plants have been virtually eliminated from the native plant communities within the Tucson area, but do exist in ornamental plantings. Fruiting stalks are removed by homeowners after they have dried, due to their "unsightly" nature. This has created shortages of nesting substrates within the city, however *X. c. arizonensis* persists in large numbers. Thus, we began to examine whether *X. c. arizonensis* has begun using ornamental plants or structural timbers as nesting substrates.

We discovered large numbers of *X. c. arizonensis* associated with the fan palm [*Washingtonia filifera* (Lindley) Wendland] which is not native to the Sonoran

Figure 1. A fan palm infructescense containing a *Xylocopa californica arizonensis* nest. Notice the entrance hole at the base of the stalk.

Desert. It is, however, used extensively as an ornamental plant. There have been reports (O'Brien, L. B. & C. W. O'Brien. 1966. Pan-Pac. Entomol., 42: 27–29) that *X. c. arizonensis* used fan palm fronds for nesting in California, where both the bee and plant are native in palm oases. Closer examination revealed that the bees were indeed using this plant as a nesting substrate in Tucson, but they were not using the fronds; instead they were using the dried fruiting stalks (Fig. 1). This use of dried fan palm infructescenses as a nesting substrate has not been previously reported. The nest morphology was similar to that reported by O'Brien & O'Brien (1966): entrance holes were located on the underside of the stalk, near the base, with the most of the gallery extending downward away from the trunk and only a short portion extending toward the trunk. The nests are typically much longer than those reported by O'Brien & O'Brien (1966) with one measuring 35 cm long and containing 15 cells. This difference can be explained by the morphology of the two substrates: the fronds are oblong in shape and flatten out much sooner than the round fruiting stalks.

Apparently, as Tucson expanded and native nesting substrates were removed, the bees found and used the fan palm fruit stalks for nest sites. The fruit stalks of native plants (*Yucca, Agave,* and *Dasylirion*) and fan palm are similar: all are cylindrical with similar diameters (except that *Agave* stalks are typically much bigger), have hard exterior sheaths, and a softer pithy interior.

Perhaps the use of fronds for nesting substrate over fruiting stalks is more derived, and could be due to the more abundant nest sites available (i.e., more fronds than fruiting stalks per palm). Thus, in California where palms and bees have occurred together for a longer period of time, nesting in the fronds may have

become the dominant behavior. Unfortunately, this hypothesis does not explain why no nests in fruiting stalks have been reported from California. An alternative explanation is that use of the fronds as nest sites is simply rare and the two fronds with nests described by O'Brien & O'Brien (1966) are exceptions rather than the usual pattern. Certainly the dichotomy between nest site selection in fan palm fronds versus fruiting stalks warrants further examination, and may provide insights into nest site selection criteria used by *X. c. arizonensis* females.

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